

**REMARKS**

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the remarks and amendments herewith.

**I. THE DOUBLE PATENTING REJECTIONS ARE OVERCOME**

Claims 37-72 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-37 of U.S. Patent No. 6,331,330 ("the '330 patent") in view of EP 0 252 755. Claims 37 and 39-48 were also rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 18 and 23-27 of U.S. Patent No. 6,296,910 ("the '910 patent") in view of EP 0 252 755. The rejections are respectfully traversed.

Although Applicants maintain that the rejected claims are indeed patentable over U.S. Patent Nos. 6,331,330 and 6,296,910, in order to further prosecution, Applicants have enclosed herewith a Terminal Disclaimer as to both U.S. Patent Nos. 6,331,330 and 6,296,910.

As entry of the enclosed Terminal Disclaimer renders the double patenting rejections moot, reconsideration and withdrawal of the double-patenting rejections is respectfully requested.

**II. THE ART REJECTIONS ARE OVERCOME**

Claims 37-40, 42-48, 58 and 68-70 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated over Kim et al. (U.S. Patent No. 5,344,676). Claim 72 was also rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Spiller (U.S. Patent No. 3,754,975). The rejections are respectfully traversed.

Applicants respectfully remind the Examiner that a two-prong inquiry must be satisfied in order for a Section 102 rejection to stand. First, the prior art reference must contain all of the elements of the claimed invention, *see Lewmar Marine Inc. v. Barient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987), and, the single prior art reference must contain an enabling disclosure, *see Chester v. Miller*, 15 U.S.P.Q.2d 1333, 1336 (Fed. Cir. 1990).

Applicants respectfully submit that the rejections under 35 U.S.C. §102 fail under such tests.

Claim 37 requires, *inter alia*, the step of pressure feeding a material solution from a material solution supply to an outlet. It is respectfully submitted that there is no such teaching or disclosure of such a step in Kim et al. The Office Action apparently considers the capillary tube (10), in combination with the effect of gravity, to feed the liquid precursor under pressure. This is not the case.

Kim *et al.* clearly discloses (see, for example, the abstract, lines 7 to 9 and column 3, lines 14 to 22) that the liquid precursor is prevented, by surface tension, from flowing from the tube (10) absent the application of an electric charge to the needle (14). Thus, contrary to the Examiner's allegation, it is clear that gravity has no part in feeding the liquid precursor.

Kim *et al.* also clearly discloses (see, for example, the abstract, lines 9 to 12 and column 3, lines 26 to 32) that the mechanism for generating the nanodrops is through the application of an electric charge to the needle (14) and the dis-integration of the liquid precursor at the tip (16) of the needle (14), which dis-integration produces a plurality of liquid jets, which in turn break up into nanodrops. As clearly stated, this mechanism is one of **field emission or ionization**, and is manifestly not one of **pressure feeding** the liquid precursor in the manner as required by the claimed invention.

It is interesting to note that a similar rejection was made during the prosecution of U.S. Patent No.

Therefore, Kim et al. fails to teach or disclose every element of the present invention as claimed in claim 37, and accordingly, the invention as claimed in claim 37 is clearly distinguished over Kim *et al.* Furthermore, as claims 38 to 69 were rejected due to their dependence on claim 37, the rejection of these claims must also be withdrawn.

Claim 70 defines a method of depositing a material in which *inter alia* the rate of feeding the material solution, the electric field strength and the temperature gradient are configured such that the droplets one or both of decompose and react prior to reaching the substrate so as to form a powder. Applicants respectfully submit that there is no disclosure of such a method in Kim *et al.*

In Kim *et al.* (see Figure 5 and column 4, lines 46 to 56), a method is disclosed for forming a powder. In this method, however, a spray of nanodrops is directed through a heated zone of uniform temperature as provided by a heater (42), and not a **temperature gradient** as required by the claimed invention. There is absolutely no disclosure or suggestion in Kim *et al.*

of the formation of a powder by directing a stream of droplets of a material solution through a temperature gradient.

Accordingly, the invention as claimed in claim 70 is clearly distinguished over Kim *et al.* Indeed, it is of interest to note that a similar rejection in the parent application, which is now U.S. Patent No. 6,331,330, was overcome on the basis of this distinction.

The Office Action also alleges that the subject-matter of claim 72 is anticipated by Spiller. Applicants respectfully disagree.

Claim 72 defines a method of depositing a material in which, *inter alia*, a decreasing temperature gradient is provided from the surface of a substrate to an outlet.

Spiller makes no disclosure or suggestion of such a method. In Spiller, a non-metallic substrate (18, 18'), which is supported by a moving substrate support (13, 13'), is heated to an elevated temperature and coated with a metal salt, which decomposes to provide a metallic deposit (see, for example, column 3, lines 58 to 62).

The fact that the substrates (18, 18') are heated to an elevated temperature does not result in a temperature gradient in the manner as required by the claimed invention. In Spiller, as the substrates (18, 18') are moved, as embodied along a track (11), the substrates (18, 18') must be heated from the surrounding environment, and, in this mode of heating, the environment must be hotter than the substrates (18, 18') in order to effect heat transfer from the environment to the substrates (18, 18'). As will be appreciated, where the environment is hotter than the substrates (18, 18'), there manifestly cannot be a decreasing temperature gradient away from the surface of the substrates (18, 18') as required by the claimed invention.

Accordingly, the invention as claimed in claim 72 is clearly distinguished over Spiller.

Therefore, reconsideration and withdrawal of the rejections of the application under 35 U.S.C. §102(b) are respectfully requested.

Claims 41, 49, 55057, 67 and 71 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kim *et al.* Claims 50-54 were also rejected under 35 U.S.C. §103(a) as being unpatentable over Kim *et al.* in view of Clark (U.S. Patent No. 4,921,731) or Chivukala (U.S. Patent No. 6,066,581). The rejections are respectfully traversed.

The Examiner respectfully reminded that for a Section 103 rejection to be proper, there must be some prior art teaching which would have provided the necessary incentive or motivation for modifying the reference teachings to arrive at the claimed invention. *In re*

*Laskowski*, 12 U.S.P.Q. 2d 1397, 1399 (Fed. Cir. 1989); *In re Obukowitz*, 27 U.S.P.Q. 2d 1063 (BOPAI 1993). Further, the Examiner is respectfully reminded that “obvious to try” is not the standard under 35 U.S.C. §103. *In re Fine*, 5 U.S.P.Q. 2d 1596, 1599 (Fed. Cir. 1988). And, as stated by the Court in *In re Fritch*, 23 U.S.P.Q. 2d 1780, 1783-1784 (Fed. Cir. 1992): “The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification.” Also, the Examiner is additionally respectfully reminded that for the Section 103 rejection to be proper, **both the suggestion of the claimed invention and the expectation of success must be founded in the prior art, and not Applicants’ disclosure.** *In re Dow*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988).

Furthermore, the Examiner is also respectfully reminded that MPEP 2143.01 mandates that for a Section 103 rejection, there must be some suggestion or motivation to modify reference teachings, and, that MPEP 2143.02 further mandates that for a section 103 rejection, there must be a reasonable expectation of success.

Initially, Applicants again assert, as described above, that Kim et al. fails to teach or suggest or disclose every element of the present invention as claimed in claim 37, and accordingly, the invention as claimed in claim 37 is clearly distinguished and non-obvious over Kim *et al*, as are claims 41, 49, 55-57 and 67 as these claims depend from claim 37.

As described above, Kim *et al.* contains no disclosure of a pressure feed as is required by the present claims, and nowhere in Kim *et al.*, is any teaching or suggestion found that would encourage one of skill in the art to modify the **field emission or ionization** method utilized therein to arrive at the **pressure feed** of the present invention.

Independent claim 71 was also considered allegedly obvious over Kim *et al.* Applicants disagree.

Claim 71 defines a method of depositing a material in which, *inter alia*, an electric field is generated electrostatically to attract droplets towards a substrate and the electric field is maintained for at least part of the time during which the deposited material is cooled.

The Office action apparently considers the maintenance of the electric field during cooling to be an obvious variation of the method of Kim *et al.* This is not the case. None of the cited prior art documents disclose or suggest this feature, and, if this rejection is maintained it is

respectfully requested that evidence be provided to Applicants demonstrating that this feature of the claimed invention was previously known in the art.

This notwithstanding, the method of Kim *et al.* would not allow for maintenance of the electric field during cooling in the manner as suggested by the Office Action. In Kim *et al.* (see, for example, column 3, lines 26 to 32), the electric field causes the generation of nanodrops, and, if the electric field were to be maintained during cooling, the result would, contrary to the claimed invention, be to continue deposition, leading to the continued heating of the newly-deposited material. Accordingly, the invention as claimed in claim 71 is not obvious over Kim *et al.* as there is no teaching or suggestion in Kim *et al.* to modify the methods therein to arrive at the present invention.

Claims 50-54 were also rejected as being obvious over Kim *et al.* in view of Clark (U.S. Patent No. 4,921,731) or Chivukala (U.S. Patent No. 6,066,581). As described above, Kim *et al.* contains no disclosure of a pressure feed as is required by the present claims, and nowhere in Kim *et al.*, is any teaching or suggestion found that would encourage one of skill in the art to modify the **field emission or ionization** method utilized therein to arrive at the **pressure feed** of the present invention, as is required by claims 50-54 due to their ultimate dependence on claim 37. As neither Clark nor Chivukala remedy this deficiency, or provide any teaching or suggestion to modify the references to arrive at the present invention, the rejection is improper and must be withdrawn.

Consequently, for all of the reasons provided above, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested.

### **REQUEST FOR INTERVIEW**

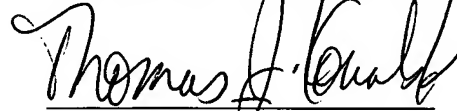
If any issue remains as an impediment to allowance, prior to issuance of any paper other than a Notice of Allowance, an interview, is respectfully requested, with the Examiner his supervisor, and, the Examiner is respectfully requested to contact the undersigned to arrange a mutually convenient time and manner for such an interview.

**CONCLUSION**

In view of the remarks herein and the enclosed Terminal Disclaimer, the application is in condition for allowance. Reconsideration and withdrawal of the rejections of the application, and prompt issuance of a notice of allowance is respectfully requested.

Respectfully submitted,  
FROMMER LAWRENCE & HAUG LLP

By:

A handwritten signature in cursive script, appearing to read "Thomas J. Kowalski", written over a horizontal line.

Thomas J. Kowalski  
Reg. No. 32,147  
Angela M. Collison  
Reg. No. 51,107  
(212) 588-0800